

## REMARKS

Applicants' attorney would like to thank the Examiner for careful consideration of this Application. Claims 1-20 are pending in the application. Claims 13-19 have been withdrawn.

### Rejection under 35 U.S.C. § 103

Claims 1-12 and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 3,337,391 to Clayton (hereinafter "Clayton") in view of U.S. Patent No. 7,015,265 to Resendes et al. (hereinafter "Resendes"). Applicants traverse this ground of rejection.

Clayton discloses bonding siliceous materials to organic polymers with organic titanates. Specifically, Clayton discloses coating the surface of a siliceous surface with an "organic" titanium compound to increase the bonding between the siliceous surface and a polymer. As pointed out in the previously submitted Responses, Clayton does not use an organic compound as featured in the instant claims. The compound of Clayton is an organic derivative as stated in column 1, lines 23-26. Although the titanium derivative of Clayton may include organic moieties, it is not an organic compound. The compound of Clayton is based on titanium and there is no mention of other organic compounds in Clayton. The titanium compounds described in Clayton feature a variety of organic groups which are attached either directly or indirectly to a titanium metal center. The 'R' group can be replaced by a variety of functional groups, and X can be a reactive group which can react with the siliceous surface, such as a halogen, hydroxyl or ester group. Of particular relevance is the mention of triethanolamine titanate-N-oleate. In contrast thereto, in the present invention, the organic compound is not bound to a metal center. For the sake of clarity, the disclosure in Clayton does not go beyond disclosing of the so called "organic" derivatives of titanium. Moreover, these compounds are used to coat the filler prior to the filler coming into contact with an organic rubber. *See Clayton, column 1, lines 15-19.* In contrast, present claim 1 features, among other features, reacting the filler with an organic compound. Clayton neither discloses reacting its titanium compound with a filler nor reacting the fillers with an organic compound. Organic compounds according to the present invention include, for example, proteins, aspartic acid, 6-aminocaproic

acid, diethanolamine and triethanolamine, and other organic compounds as described in the instant Specification. *See paragraph [0059] of the instant Specification.* None of the compounds according to the present invention include compounds where an organic moiety is attached to a metal center. As such, Clayton does not disclose organic compounds according to the present invention or reacting organic compounds with an organic compound prior to introducing the pre-reacted filler with an elastomer.

Resendes, on the other hand, does not add to Clayton to render the instant claims obvious. Applicants submit that Resendes does not disclose a process utilizing a "pre-reacted" filler as claimed in the present invention. Resendes discloses a process for preparing filled halobutyl elastomers, which includes mixing a halobutyl elastomer, particles of filler, an additive containing both amino alcohol functional groups, and one or more hydrated metal halogens. According to Resendes, the organic compound which has at least one hydroxyl group and at least one basic nitrogen containing group may react with the mineral filler. This "reaction" disclosed at Column 5, lines 15-29 is an "in-situ" reaction. Example 2 of Resendes also clearly teaches mixing all the components "in-situ." As known by those of skill in the art, "in-situ" occurs when all the reactants are combined together and a reaction may occur after the components are mixed. In instant claim 1, the filler is expressly reacted with the organic compound prior to mixing with the elastomer. Resendes does not teach this.

Furthermore, and as noted in Example 2 of the present invention, the use of DMAE functionalized silica significantly decreases the DIN abrasion volume loss of this compound compared to the control compound which was prepared in an analogous manner, but with the use of unmodified HiSil 233. The compound prepared with DMAE functionalized silica was found to possess a  $t_{03}$  time only slightly lower than that found for the control compound. This  $t_{03}$  time is, however, significantly longer than that observed for compounds in which DMAE is added to a mixture of BB2030 and HiSil 233 via conventional mixing approaches. RPA Analysis (Figure 3) of the compound prepared with DMAE functionalized silica revealed a significant improvement in filler distribution as evidenced by the lower value of  $G^*$  at low strains as compared to the control compound based on unmodified HiSil 233. The stress-strain profile (Figure 4) revealed a substantial improvement in the degree of re-reinforcement when compared to

that observed for the control compound. As such, an advantage is shown when the filler is pre-reacted.

Thus, Clayton alone or in combination with Resendes fails to render the instant claims obvious. Nowhere in the references is it disclosed to react an organic compound with a filler prior to introduction with an elastomer. There is no motivation in Clayton to replace the titanium organic derivative with a purely organic compound and, further, there is no motivation in Resendes or Clayton to pre-react the filler with an organic compound. Accordingly, reconsideration and withdrawal of the Examiner's rejection is respectfully requested.

#### Double Patenting

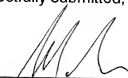
The present Office Action sets forth a rejection based on double patenting over U.S. Patent No. 7,015,265. This rejection was addressed in the Applicants Response dated September 29, 2006 after which the Office responded and accepted the Terminal Disclaimer over this patent. As such, the Applicant is confused as to the presence of this rejection in the present Office Action. The Applicant's believe this is an oversight in the Patent Office and direct the Examiner's attention to the Response dated September 29, 2006 for a response regarding such. However, if this rejection is being maintained, the Applicant's request that the rejection be held in abeyance until allowable subject matter is determined.

Applicants submit that the pending claims are in condition for allowance and notice to such effect is respectfully requested. Should the Examiner have any questions regarding this application, the Examiner is invited to initiate a telephone conference with the undersigned.

The USPTO is hereby authorized to charge any fees, including any fees for an extension of time or those under 37 C.F.R. 1.16 or 1.17, which may be required by this paper, and/or to credit any overpayments to Deposit Account No. 50-2527.

Respectfully submitted,

By



Michael A. Miller  
Attorney for Applicants  
Reg. No. 50,732

LANXESS Corporation  
Law & Intellectual Property Department  
111 RIDC Park West Drive  
Pittsburgh, Pennsylvania 15275-1112  
(412) 809-2233  
FACSIMILE PHONE NUMBER:  
(412) 809-1054

S:\Law Shared\SHARED\PATENTS\8000-8999\8106\Response 1-29-2009.doc